Agenda Item H.3
Coastal Pelagic Species Management Team Report
on Management Framework for the Central
Subpopulation of Northern Anchovy

Presented by Gregory Krutzikowsky
June 28, 2021
Outline

• Background Information

• Flowchart – A prescriptive management framework
  • Revisions, simplification, & parameter recommendations
  • Potential ways to implement

• Other approaches
• Report highlights 3 background documents
  • Workshop report on CPS assessments
    • September 2016
  • SSC report on Northern Anchovy Assessments and Management Measures
    • November 2016
  • Joint SSC/CPSMT report on CSNA OFL process
    • April 2017
Flowchart

• October 2019 joint meeting
• Presented in November 2019
• Received support
  • Needed minor revisions
  • Needed specific parameter recommendations
Start each year with existing OFL, ABC_d=Q*OFL. Consider ecosystem indicators and trends in survey indices when setting ACLs.

Has it been Y years since last assessment, or was "do an assessment" triggered last year?

Has it been Z years since last update to LONG-TERM average biomass, \( \bar{B}_{LT} \)?

Has it been X years since last update to SHORT-TERM average biomass, \( \bar{B}_{ST} \)?

Has catch been \( >x_3 ABC \)?

Calculate new \( \bar{B}_{LT} \). Is \( E_{MSY} \bar{B}_{LT} \) different from OFL by a proportion of at least \( x_1 \), up or down?

Calculate new \( \bar{B}_{ST} \). Is \( QE_{MSY} \bar{B}_{ST} \) less than ABC_d by a proportion of at least \( x_2 \)?

Conduct/use a model-based assessment. Update \( E_{MSY} \) and \( \bar{B}_{LT} \), and hence update OFL and ABC_d. New OFL = EMSY \( \bar{B}_{LT} \) and new ABC_d=QOFL

New OFL = \( E_{MSY} \bar{B}_{LT} \) and new ABC_d=QOFL

This year's ABC = \( QE_{MSY} \bar{B}_{ST} \)

Evaluate need for assessment next year.

\( Y = \) interval for full assessments regardless of trigger (could be infinity)
\( Z = \) interval for updating long-tem biomass (from survey)
\( X = \) interval for updating short-tem biomass (from survey), \( X \leq Z \leq Y \).

\( Q = \) ABC buffer. Now 0.25, might be larger with more frequent updates.
\( x_1 = \) threshold for changes in OFL due to changes in \( B_{LT} \)
\( x_2 = \) threshold for reducing ABC in response to low \( B_{ST} \)
\( x_3 = \) threshold for attainment
Start each year with existing (i.e., prior year) OFL & ABC, and potentially update values for OFL and/or ABC based on flowchart results.

Consider ecosystem indicators and trends in survey indices if setting ACL.

Has catch been \( \geq (x_3 = 0.9) \times \text{ABC} \)?

- yes: Conduct/use a model-based assessment
- no: Has it been \( X = 2 \) years since last update to SHORT-TERM average biomass, \( \bar{B}_{ST} \)?

- yes: Calculate new \( \bar{B}_{ST} \)
- no: Evaluate need for assessment next year

\( \text{ABC} = \text{ABC}_d \)

\( \text{Is } Q \times \text{EMS} \times \bar{B}_{ST} \text{ less than } \text{ABC}_d \text{ by a proportion of at least } x_2 = 0.4? \)

- yes: \( \text{ABC} = Q \times \text{EMS} \times \bar{B}_{ST} \)
- no: Conduct/use a model-based assessment

- Update \( E_{MSY} \) and \( \bar{B}_{LT} \) and thus update OFL and \( \text{ABC}_d \)
- New OFL = \( E_{MSY} \times \bar{B}_{LT} \) and new \( \text{ABC}_d = Q \times \text{OFL} \)

Evaluate need for assessment next year

\( \text{Y} = \) interval for full assessments regardless of trigger

\( \text{X} = \) interval for examining short-term biomass from survey

\( \text{ABC}_d = \) ABC calculated from assessment

\( Q = \) ABC buffer = 0.25

\( x_2 = \) threshold for reducing ABC in response to low \( \bar{B}_{ST} \)

\( x_3 = \) threshold for ABC attainment that triggers evaluation of need for new assessment

\( \bar{B}_{LT} = \) 10 year average (arithmetic mean) stock biomass from assessment

\( \bar{B}_{ST} = \) 3 year average (arithmetic mean) stock biomass from surveys
• Y = Z = 8 years: interval for full assessments and OFL regardless of trigger
• X = 2 years: interval for examining short-term biomass from survey
• Q = 0.25: ABC buffer
• $x_2 \geq 40\%$ reduction from $\text{ABC}_d$: threshold for reducing ABC in response to low $\overline{B}_{ST}$
• $x_3 \geq 90\%$: threshold for ABC attainment that triggers evaluation of need for new assessment
• $\overline{B}_{LT} = 10$ year average (arithmetic mean) stock biomass from assessment
• $\overline{B}_{ST} = 3$ year average (arithmetic mean) stock biomass from surveys
Basics of the process

• Every 8 years conduct a model-based assessment of CSNA
  • Determine the OFL based on the average LONG-TERM biomass over the last 10 years
  • \( \text{ABC}_d = Q \times \text{OFL} = 0.25 \times \text{OFL} \) (the default ABC is a 75% reduction from the OFL)
    • These are the default management values for the next 8 years

• Every 2 years determine if the SHORT-TERM biomass estimate from surveys triggers an ABC reduction from the \( \text{ABC}_d \) or not
  • Also examine if catch attainment has been \( \geq 90\% \)
    • If yes, evaluate if a new assessment should be done the next year
Hypothetical ABC values vs. Short-Term Biomass values
Based on Long-Term Biomass of 500,000 mt and OFL = 119,500 mt

ABC = 29,875 mt

40% reduction trigger point
Ways to Implement the Flowchart

• SAFE document
  • Prepared and reviewed annually
  • Provides best available science on stocks and fisheries

• Modify COP 9, schedule 3
  • Add assessment schedule for CSNA
  • Add short-term biomass review for potential ABC changes

• FMP Amendment
Additional Implementation Considerations

- Consider changing fishing year to July 1 to June 30
  - Current fishing year is calendar year
  - Summer survey results available in February
  - ABC trigger examined in April
  - Changes implemented for July 1 – June 30 fishing year?
Additional Implementation Considerations

• Flexibility
  • Ship breakdown
  • Government shuts down
  • Worldwide pandemics
  • Who knows what else?
Additional CSNA Management Approaches

• Set an assessment schedule to periodically update long-term OFL (similar to the Y row of flowchart where CPSMT recommended 8 year assessment interval)

• Set a trigger for ABC reduction (similar to the X row in the flowchart, but could set at single year or multi-year threshold levels)

• Consider something like what is done for Pacific mackerel – full assessment every 4 years and catch only projection assessments at interim 2 year periods
Questions?